



United States Department of Agriculture
Forest Service
Grand Mesa-Uncompahgre-Gunnison National Forests
Paonia and Grand Valley Ranger Districts

United States Department of the Interior
Bureau of Land Management
Uncompahgre Field Office

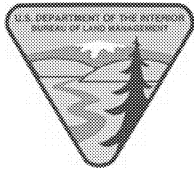
May 2003



Environmental Assessment Volume I



Gunnison Energy Corporation's Proposed Exploratory Gas Drilling Project



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**ENVIRONMENTAL ASSESSMENT
GUNNISON ENERGY CORPORATION'S
PROPOSED EXPLORATORY GAS DRILLING PROJECT**

VOLUME I

Prepared for

**U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
Grand Mesa-Uncompahgre-Gunnison National Forests
Paonia and Grand Valley Ranger Districts**

**U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
Uncompahgre Field Office**

May 2003

ACRONYMS AND ABBREVIATIONS

4WD	four-wheel-drive
AADT	average annual daily traffic
AAQS	Ambient Air Quality Standards
AIRFA	American Indian Religious Freedom Act
amsl	above mean sea level
APD	Application for Permit to Drill
AQCC	Air Quality Control Commission
ATV	all-terrain vehicle
AUM	animal unit month
BCF	billion cubic feet
BE	Biological Evaluation
BLM	Bureau of Land Management
BMP	Best Management Practices
bpd	barrels per day
Btu	British thermal unit
CBM	coalbed methane
CCD	County Census Division
CDMG	Colorado Division of Mining and Geology
CDOT	Colorado Department of Transportation
CDOW	Colorado Division of Wildlife
CDPHE	Colorado Department of Public Health and Environment
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CNHP	Colorado Natural Heritage Program
CO	carbon monoxide
CO ₂	carbon dioxide
COGCC	Colorado Oil and Gas Conservation Commission
CR	County Road
CRCT	Colorado River Cutthroat Trout
CSU	Controlled Surface Use
CWQCC	Colorado Environment Water Quality Control Commission
dBA	decibels on the A-weighted scale
dbh	diameter at breast height
DR	Drive
DST	drill stem test
E&P	exploration and production
EA	Environmental Assessment
EHM	Extremely Hazardous Materials
EIS	Environmental Impact Statement
EPCRA	Energy Planning and Community Right-to-Know Act
EO	Executive Order
ER	effectiveness rating
ESA	Endangered Species Act
F	Fahrenheit
FLPMA	Federal Land Policy and Management Act
FOGLRA	Federal On Shore Oil and Gas Leasing Reform Act
FR	Forest Service Road
ft ² /day	square feet per day
ft ³	cubic feet

GEC	Gunnison Energy Corporation
GIS	geographic information system
GMUG	Grand Mesa-Uncompahgre-Gunnison National Forests
gpm	gallons per minute
GPS	global positioning system
HAPs	Hazardous Air Pollutants
I-70	Interstate 70
IRA	inventoried roadless area
KRCRA	Known Recoverable Coal Resource Area
kV	kilovolt
LAU	Lynx Analysis Unit
LGD	Local Government Designee
LRMP	Land and Resource Management Plan
MAC	Metcalf Archaeological Consultants, Inc.
µg/m ³	microgram per cubic meter
µg/l	micrograms per liter
mg/l	milligrams per liter
MIS	Management Indicator Species
MSDS	Material Safety Data Sheets
mya	million years ago
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NFS	National Forest System
NHPA	National Historic Preservation Act
NO ₂	nitrogen dioxide
NOS	Notice of Staking
NRHP	National Register of Historic Places
NSO	No Surface Occupancy
OAHP	Office of Archaeology and Historic Preservation
ORV	off-road vehicle
OSHA	Occupational Safety and Health Administration
P	Primitive
PCA	Potential Conservation Area
PILT	payments in lieu of taxes
PLS	pure-live-seed
PM _{2.5}	particulate matter less than 2.5-micron aerodynamic diameter
PM ₁₀	particulate matter less than 10-micron aerodynamic diameter
PSD	Prevention of Significant Deterioration
psi	pounds per square inch
RACR	Roadless Area Conservation Rule
RCRA	Resource Conservation Recovery Act
RMP	Resource Management Plan
RN	Roaded Natural
ROS	Recreation Opportunity Spectrum
ROW	right-of-way
RUP	road use permit
SARA	Superfund Amendments and Reauthorization Act
SEO	State Engineer's Office
SH	State Highway
SHPO	State Historic Preservation Officer
SO ₂	sulfur dioxide
SOPA	schedule of proposed actions
SPCC	Spill Prevention, Control, and Countermeasure Plan

SPM	Semi-Primitive Motorized
SUPO	Surface Use Plan of Operation
SWPPP	Storm Water Pollution Prevention Plan
TCF	trillion cubic feet
TDS	total dissolved solids
TPS	total petroleum system
TSS	total suspended solids
TES	threatened, endangered, and sensitive species
U	Urban
U.S.	United States
U.S. Hwy	U.S. Highway
USDA	U.S. Department of Agriculture
USDI	U.S. Department of the Interior
USDOT	U.S. Department of Transportation
USEPA	U.S. Environmental Protection Agency
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
V/C	volume-to-capacity
VOC	volatile organic compound
VQO	visual quality objective
VRM	Visual Resource Management
WAPA	Western Area Power Authority
WRIS	Water Resources Information System
WWE	Wright Water Engineers, Inc.

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1.0 INTRODUCTION

1.1 Introduction

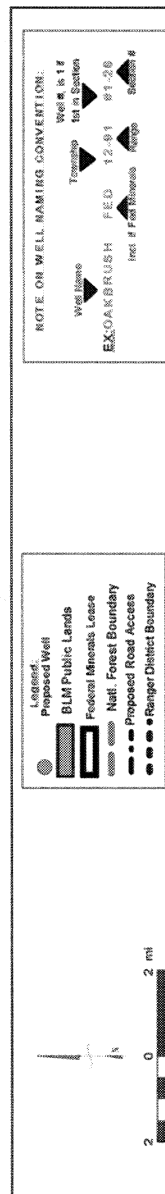
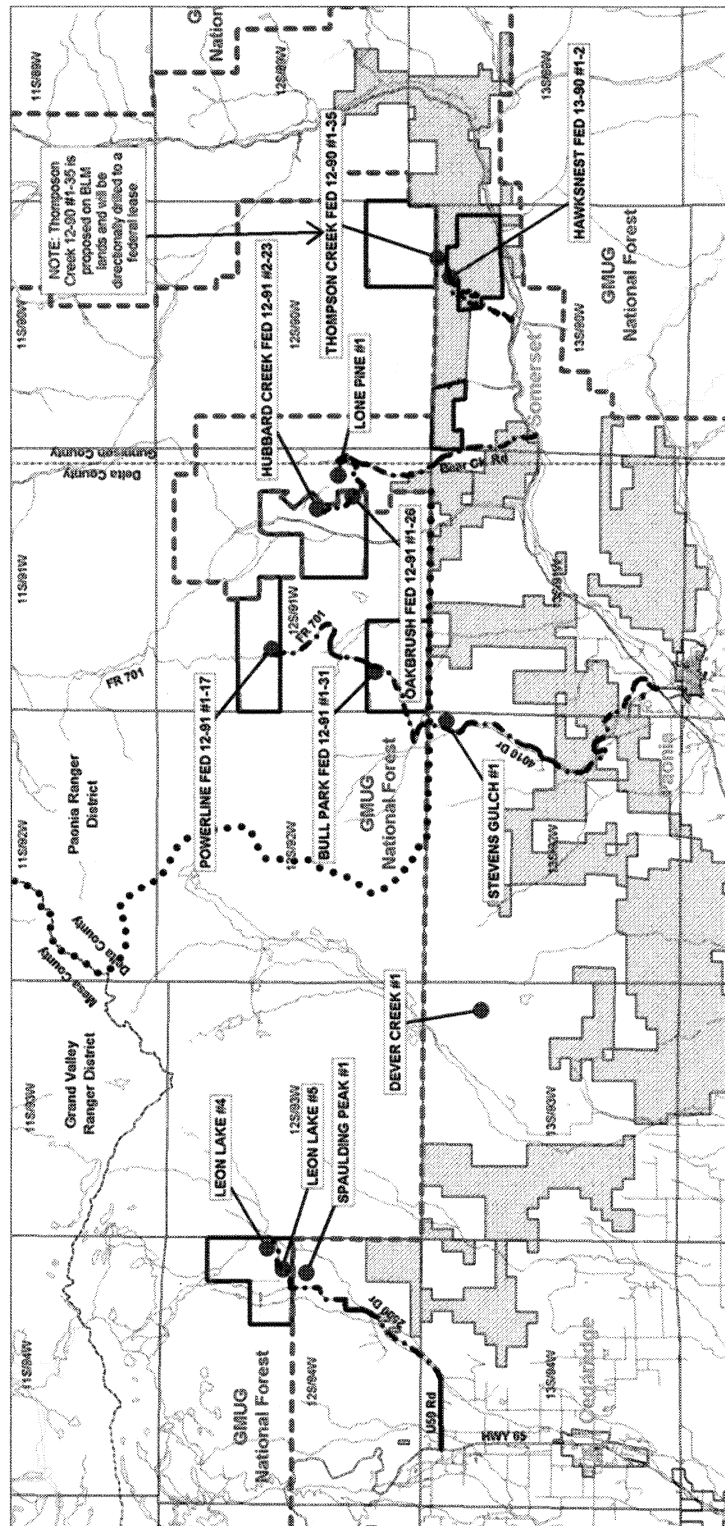
The Grand Mesa-Uncompahgre-Gunnison (GMUG) National Forests and the Bureau of Land Management (BLM) Uncompahgre Field Office are considering a proposal from Gunnison Energy Corporation (GEC) of Denver, Colorado, to conduct an exploratory drilling project for natural gas resources on National Forest System (NFS) and BLM public lands located north of the towns of Cedaredge, Paonia, and Somerset, within Delta and Gunnison Counties, Colorado (**Figure 1-1**). GEC has proposed a program to explore for natural gas resources on the south flank of the Grand Mesa, and in the North Fork valley that includes eight locations on NFS and BLM public lands, and four drill site locations on private lands in Delta County.

GEC submitted Application for Permits to Drill (APDs) to the federal agencies for the eight exploratory gas wells that included Surface Use Plans of Operations (SUPOs) and downhole drilling and technical engineering proposals. The APDs were submitted following procedures for oil and gas leasing and exploration. A description of the authorizing actions and the federal oil and gas process are given in Sections 1.3 and 1.5, respectively.

The eight proposed drill sites are located on existing federal and oil and gas leases, except the Thompson Creek Fed 12-90 #1-35, where the proposal is to directionally drill from BLM-managed lands (off-lease) onto a federal lease because of the presence of an Inventoried Roadless Area (IRA) on lease COC-65529. The proposed wells are located on Federal Oil and Gas leases C-13563-A (Leon Lake #4 and Leon Lake #5); COC-65537 (Bull Park Fed 12-91 #1-31); COC-65117 (Hawksnest Fed 13-90 #1-2); COC-65534 (Hubbard Creek Fed 12-91 #2-23 and Oakbrush Fed 12-91 #1-26); COC-65535 (Powerline Fed 12-91 #1-17); and COC-65229 (bottom hole location for the Thompson Creek Fed 12-90 #1-35). Subsequent references to the well sites use the name without the numbering system.

Six of the proposed natural gas wells (Bull Park, Hubbard Creek, Leon Lake #4, Leon Lake #5, Oakbrush, and Powerline) are located in Delta County on NFS lands administered by the GMUG in Grand Junction and Paonia, Colorado. The other two proposed natural gas well sites (Hawksnest and Thompson Creek) are located in Gunnison County on public lands administered by the BLM out of its Uncompahgre Field Office in Montrose, Colorado.

The APDs were submitted for exploration activities only, which would consist of drilling, completion, testing, and monitoring at eight well sites; construction of new spur access roads; and water use and disposal activities. The exploratory drilling program is intended to gather information about the extent and distribution of natural gas resources on the federal oil and gas leases, and to perform tests on each well to assess the economic viability of future production. The proposed drilling would target potential gas producing zones in the sandstone and coal layers in the Mesaverde Formation.



Natural Gas Exploratory Drilling Project

Figure 1-1
Project Location Map

The timeframe for the proposed exploratory drilling project is expected to be about 3 years. Project implementation would depend upon needed approvals and completion of National Environmental Policy Act (NEPA) requirements. Project activities are expected to be initiated in 2003 or spring of 2004. The anticipated duration of particular project activities is described in Chapter 2.0. Future well production is not considered part of this analysis. Wells that are determined to be uneconomical would be reclaimed within 1 year after exploration drilling, completion, and testing are conducted (see Section 2.1.2.11).

For those wells that are identified as economically viable, they would be tested and monitored until an environmental evaluation for production facilities, including pipelines, compressors, etc., has been completed. In that case, the final phase of reclamation would not be completed until all future development was completed.

In addition to the eight wells proposed on federal lands, GEC also has proposed 4 wells on private lands in Delta County (see **Figure 1-1**). Approvals for these 4 wells were given by the Colorado Oil and Gas Commission (COGCC) and Delta County. Project activities at the private well sites are anticipated to be initiated in the summer or fall of 2003 or spring/summer of 2004. While the 4 wells on private lands are not considered for approval by the federal agencies, they are included in the cumulative effects analysis for this Proposed Action.

1.2 Purpose and Need

The purpose and need for the Proposed Action is to allow GEC to exercise its exclusive right to explore for oil and gas resources on its federal oil and gas leases while minimizing effects on other resources. The purpose and need also is to allow GEC to gather data about the extent and distribution of those oil and gas resources under the terms and conditions of its leases and to determine the technical and economic feasibility of developing those oil and gas resources to help meet the public's needs for natural gas and oil.

This project also would serve to comply with direction in the GMUG Land and Resource Management Plan (LRMP), as amended by the Oil and Gas Leasing Final Environmental Impact Statement (EIS) and Record of Decision, which encourages environmentally sound energy and mineral development and emphasizes oil and gas exploration outside wilderness areas. This project also serves to meet direction in the BLM Uncompahgre Resource Management Plan (RMP) that identifies oil and gas activities as part of its standard management direction.

This project would fulfill the Federal Government's policy to foster and encourage mineral development, as expressed in the Mining and Minerals Policy Act of 1970 and recognized in the Federal Land Management and Policy Act of 1976 (FLMPA). This project also would fulfill the goals of the 1920 Mineral Leasing Act, as amended, which promotes the development of oil and gas resources.

1.3 Authorizing Actions

Leasing and exploration for federal oil and gas resources are under the authority of the Mineral Leasing Act of 1920, as amended, the National Mining and Minerals Policy Act of 1970, the NEPA of 1969, the Federal On Shore Oil and Gas Leasing Reform Act of 1987 (FOOGLRA), and Federal Land Policy and Management

Act (FLPMA). Regulations governing the role of the U.S. Forest Service (USFS) in oil and gas leasing operations on NFS lands are cited in 36 Code of Federal Regulations [CFR] 228 Subpart E and for the BLM in 43 CFR 3160. These regulations promote cooperation between the USFS, BLM, industry, and the public. Executive Order 13212 dated May 18, 2001, provides for expeditious review of permits and other actions to increase the supply of natural gas while maintaining safety, public health, and environmental protections. The pending decisions would conform to the overall guidance of the GMUG National Forest Plan (1983) and Oil and Gas Leasing EIS (1993), and the BLM Uncompahgre Basin RMP (1989a). Decisions for the USFS to consider excepting lease stipulations is given under 36 CFR 228.104.

The USFS has the authority to administer all surface activities on NFS surface lands, and to prescribe required conditions for surface use. The BLM is responsible for managing both surface and mineral resources on BLM managed surface lands, and management of mineral resources on other federally managed lands. The USFS and the BLM would develop Conditions of Approval for the drilling and associated activities from this Environmental Assessment (EA).

The Proposed Action would comply with all applicable federal, state, and local laws. Potential plans, permits, and approvals are listed in Appendix A, **Table A-1**. Drilling of federal minerals is subject to BLM's Onshore and Gas Orders #1 and #2 (43 CFR 3164). Site security, gas measurement, and disposal of produced water are addressed in Onshore and Gas Orders #3, #5, and #7, respectively. BLM Onshore Order #1 requires that an applicant comply with the following requirements:

- Operations must result in the diligent development and efficient recovery of resources.
- All activities must comply with applicable federal laws and regulations and with state and local laws and regulations applicable to federal leases.
- All activities must contain adequate safeguards to protect the environment.
- Underground sources of fresh water must be protected from fluid injection operations.
- All activities must protect public health and safety.

The COGCC also provides safety and environmental protection regulations. Examples of these regulations include:

- Protection of aquifers (Rules 317.d, 317.f, 317.g, 317.h, 317.i, 317.k, 317.o, 317.p, 324A, and 317A);
- Testing of the casing integrity (Rule 326);
- Proper plugging and abandonment of wells to prevent mixing of water from different formations (Rule 319);
- Control of well drilling to prevent blowouts (Rule 317.a);

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- Safeguard the health, safety, and welfare of the community (Rules 317.a(2), 317.c, 317.e, 317.g, and 317.p); and
 - Proper reclamation of land and soil affected by oil and gas operations (1000 Series Rules).

Use of existing access roads and/or construction of new spur roads would be authorized in conjunction with well locations. Specific to BLM lands, this would involve the BLM right-of-way (ROW), USFS road use permits (RUP), and APD approval process which would conform to existing lease stipulations. All roads that are located off-lease would be covered under a separate BLM ROW authorization; as well as Thompson Creek site, which is located off-lease. The BLM ROWs would be considered under 43 CFR 2800. A USFS RUP would be required and authorized under 36 CFR Section 261.54(c) and GMUG Forest Supervisor Order 01-01. Access over state and county roads (CRs) would be authorized under local requirements, if applicable.

1.4 Decisions to be Made by Responsible Officials

The Forest Supervisor of the GMUG must decide the terms and conditions (Conditions of Approval for the SUPO) under which GEC may occupy and explore on its oil and gas leases while protecting natural resources and providing for public access and safety for the following wells: Leon Lake #4 and #5; Powerline, Hubbard Creek, Bull Park, and Oakbrush. The Forest Supervisor may decide to deny operations only under very limited and specific legally binding circumstances.

The Forest Supervisor also must decide whether or not to grant exceptions (one-time exemptions) to lease stipulations for the Leon Lake #4 and #5 wells, as described below:

Leon Lake #4

- Exception for the lease stipulation that requires drill sites to be located at least 500 feet from the high water levels of ponds, lakes, reservoirs and streams, (proposed drill site is approximately 460 feet from the normal high-water-line of an unnamed natural pond).

Leon Lake #5

- Exception for lease stipulation that requires drill sites to be located at least 500 feet from the high water level of streams (drill site proposed approximately 97 feet from intermittent stream).
- Exception for lease stipulation that requires drill sites to be located at least 500 feet from the centerlines of an existing road (drill site proposed approximately 330 feet from centerline of Forest Service Road [FR] 127).

The BLM Uncompahgre Field Office Manager must decide the terms and conditions (Conditions of Approval for the SUPO) under which GEC may occupy and explore on its oil and gas leases while protecting natural resources and providing for public access and safety for the following wells: Hawksnest and Thompson

Creek. The BLM Field Office Manager may decide to deny operations only under very limited and specific legally binding circumstances.

In addition, the BLM Uncompahgre Field Office Manager also must decide whether or not to grant a ROW on the Coal Gulch jeep trail for road access to the Hawksnest and Thompson Creek sites, a ROW on the Bear Creek Road for road access to the Hubbard Creek and Oakbrush wells, as well as for the Thompson Creek drill site location itself. If approved, the ROWs would prescribe conditions for the protection of public land resources.

The BLM Durango Field Office Manager has the responsibility for final approval of all APDs, including the drilling plan ("downhole" or technical engineering portion of the APD), and the completion activities. The USFS and BLM surface management office must provide to the BLM (Durango Field Office) with the terms and conditions for approved SUPOs on affected surface lands prior to final approval of the APD. If approved, the APD approvals are for a period not to exceed one year.

If all or certain individual SUPOs are not approved at this time, the proponent could apply in the future to drill at other locations on the leases. The leases grant exclusive rights for the lessee to explore for and produce the oil and gas resources on the lease. If approvals are given, the Deciding Officials will have the opportunity to select any additional mitigations identified in the environmental analysis to mitigate impacts.

1.5 Relationships to Policies, Plans, and Programs

Mineral management is a component of USFS and BLM resource management tasks. The mission of the USFS in relation to minerals management is to encourage, facilitate, and administer the orderly exploration, development, and production of mineral and energy resources on NFS lands to help meet the present and future needs of the Nation (USFS 1993). Similarly, the BLM manages energy and mineral development that helps meet the Nation's energy needs, as part of their multi-purpose mission. Federal review of this proposed drilling project is being done through the Notice of Staking (NOS) option of the APD process, as described in Onshore Oil and Gas Order No. 1 and 43 CFR 3160.

This EA has been prepared in accordance with the NEPA and implementing regulations. The scope of the analysis is limited to the specific activities identified in Chapter 2.0 of this EA. The NEPA analysis is needed as part of the approval process for the SUPO portions of the APDs. Based upon the analysis in the EA, the USFS and BLM will decide how exploration would occur subject to applicable laws, and terms and stipulations specified in the oil and gas leases.

The environmental analysis presented in this EA is tiered to the LRMP (USFS 1991) as amended by the Oil and Gas Leasing Final EIS for the GMUG National Forests (USFS 1993); and the Uncompahgre Basin RMP (BLM 1989a). These documents evaluated potential impacts of oil and gas leasing at a programmatic level. Subsequent NEPA analyses are prepared for site-specific proposals regarding exploration and development.

The process of evaluating the APDs is following the "Staged Decision Process" used for oil and gas activities on federal lands. This staged decision process is supported by court rulings (*Robertson vs.*

Methow Valley Citizen's Council [U.S. Supreme Court 1989]). A regulatory framework was created to include staged permitting of oil and gas exploration and development (USFS 1993). The stages include public disclosure through the NEPA process at the following decision points: 1) determination of lands available for leasing, 2) authorization to lease specific lands, 3) APD process, and 4) amendment of the APD if field development occurs (i.e., production). Each decision is based on environmental analysis and disclosure of potential impacts in accordance with NEPA requirements. Decision points 1 and 2 were addressed in the Oil and Gas Leasing Final EIS (USFS 1993) and BLM RMP. This EA addresses decision point 3, which evaluates approval for specific exploration well sites.

Approvals for specific wells sites are considered through the APD process. The APD includes site-specific SUPOs that detail the proposed use of the land surface. Prior to approval, modification, or denial of the SUPO, the proposal would be analyzed by the surface management agency in a NEPA document that is subject to appeal. If the proposal is denied, the lessee may make another proposal. It is only after the APD and SUPO are received, analyzed, and approved that ground-disturbing activities can begin. The SUPOs may be modified, approved or denied at this stage.

This EA documents and evaluates the environmental impacts of the proposed activities submitted in the SUPOs for the eight exploratory wells (Proposed Action) and alternatives, including the No Action Alternative, and serves to guide the decision-making process. The EA process provides for public input and review of the Proposed Action, analysis, and conclusions. Through this process, environmental impacts are identified and mitigation measures necessary to address these impacts are determined.

At times, a SUPO may be submitted which proposes activities that do not conform to the limits of stipulations on the applicable oil and gas lease. In these cases, the authorized officer for the surface management agency may authorize the BLM to modify (permanently change), waive (permanently remove), or grant an exception (case-by-case exemption) to a stipulation. This authorization may be done if: 1) the action complies with NEPA, 2) the action is consistent with applicable federal laws, 3) the action is consistent with the current land management plan, 4) the management objectives designated in the current land management plan can be met given a change in the present condition of the surface resources involved, or given the nature, location timing, or design of the proposed operations, and 5) the action is acceptable to the authorized officer based upon environmental review (USFS 1993).

For this project, the USFS will consider granting an exception to some lease stipulations on lease C-13563-A related to the proposed locations of the Leon Lake #4 and #5 wells (see Section 1.4). The decision to except the lease stipulations identified is subject to administrative appeal only in conjunction with an appeal of the decision on a SUPO (36 CFR 228.104 (d)(2)). This EA documents the effects of granting exceptions to the lease stipulations.

The amended LRMP for the GMUG National Forests guides all natural resource management activities and establishes standards and guidelines for those activities (USFS 1991). Management directions described in the LRMP are a result of public issues, management concerns, and management opportunities. Two management prescriptions, Management Areas 4B and 6B, apply to the GEC sites on NFS lands. Five of the sites located on GMUG land (Leon Lake #4, Leon Lake #5, Bull Park, Hubbard Creek, and Oakbrush)

are in Management Area 4B. The Powerline site is located in 6B. The following characteristics, as defined in the amended LRMP, describe these management prescriptions.

- Management Area 4B – The emphasis is on wildlife management for one or more management indicator species. Vegetation characteristics and human activities are managed to provide optimum habitat for the selected species or population goals as determined jointly with the Colorado Division of Wildlife (CDOW). Recreation and other human activities are regulated to favor the needs of the selected species. Investments to other compatible uses may occur but will be secondary to habitat requirements.
- Management Area 6B – The emphasis is on maintaining forage composition for livestock grazing. Range condition should be maintained through the use of forage improvement practices, livestock management, and regulation of other resource activities. Dispersed recreation opportunities vary between semi-primitive non-motorized and roaded natural use. Investments are made in compatible resource activities.

The GMUG Final Oil and Gas Leasing EIS was prepared in 1993 to comply with direction given in FOGLRA (1987). Based on the EIS leasing analysis, decisions were made as to which lands would be administratively available and authorized for leasing, and what terms and stipulations would be attached to each lease. These stipulations were developed for protection of the surface resources. The leasing decisions made in the 1993 EIS were applicable to those lands not under lease at the time of the decision.

The Uncompahgre Basin RMP provides the management guidance for the Thompson Creek and Hawksnest well sites. The sites are located in Management Unit 7, which is managed for multiple use with emphasis on coal development. Management direction also is described for forestry, off-road vehicle use, major utilities, acquisition of non-federal lands, and fire protection.

The proposed drilling is consistent with the GMUG Forest Plan and the BLM RMP. An amendment to either plan would not be required for this project.

The location of the Hawksnest proposed well requires a variance from the normal set back from the lease line. The BLM Durango Field Office is the responsible office for making this approval.